

tenuibus nodulosis radiantibus et striis vix elevatis concentricis crenulatis concinne decussata, latere postico longiore et dilatato, umbonibus subacutis, epidermide fusco-pilosa partim oblecta.

Hab. Lizard Island, Torres Straits.

An oblique species, most nearly resembling *L. multistriata*, with the surface of the valves very neatly sculptured with numerous fine radiating ribs, crossed by slightly elevated concentric lines.

9. LIMOPSIS WOODWARDI, A. Adams.

L. testa orbiculari, subæquilaterali, convexa, marginibus crenulatis, candida, costellis acutis tenuibus radiantibus et lirulis concentricis crenulatis decussata, costellis breviculis circa marginem ventralem interpositis ad medium valvarum evanidis, linea cardinis regulariter arcuata, dentibus acutis lamellatis prominentibus, fossa trigonali conspicua, margine ventrali intus lævi.

Hab. Lizard Island, Torres Straits.

This is a pure-white species, with the surface of the valves very delicately sculptured; the hinge-teeth are sharp and prominent, and the concentric liræ cause the radiating ribs to assume a nodulous character.

6. ON THE SPECIES OF OBELISCINÆ FOUND IN JAPAN.

BY ARTHUR ADAMS, F.L.S., ETC.

In this subfamily of *Pyramidellidæ*, the members of which are nearly all of small size, and which appear to be tolerably numerous in the seas of Japan, the form of the shell is subulate, the texture vitreous, and the surface usually polished. Nearly all the species of *Obeliscus* and *Syrnola* are prettily adorned with a spiral red-brown zone, which usually marks a line at the sutures, and crosses the last whorl at the periphery. The *Syrnolæ* are usually of small dimensions, and the inner lip is always furnished with a single parietal plait: the *Styloptygmæ* have the peritreme entire, as in *Chrysalida*, but the whorls are not plicate. In most of the specimens of *Syrnola* found, the apex of the spire is seen to be decollated. This is owing to the extreme fragility of the nucleolar whorls, which in some species form a cylindrical transparent mucro, terminating in a little globose, decumbent, sinistral whorl. In *S. cincetella*, the mucro of which is very elongated, the number of similar pellucid nucleolar whorls is about eight.

I have not hitherto been able to trace any connexion between the form or character of the shell and the internal transverse grooves seen in the whorls of so many species. Similar grooves are met with in several other genera of *Pyramidellidæ*, and also of *Helicidæ* and *Ellobiidæ*. That they serve some good purpose in the economy of the animal is no doubt true, although at present it has not been detected by our observation.

The species of *Syrnola* usually inhabit deep water, and live on a

floor of sand or sandy mud; they are very difficult to obtain alive, the shells forming the subject of this paper having been obtained, for the most part, from an examination of shell-sand. The animal of *Syrnola cincetella* crawls rapidly. It is of a semipellucid white, with the upper surface of the mentum flecked with opaque white; the tentacles are broad and triangular, with the eyes between them very close together; the mentum is greatly elongate, and bilobed at the end; and the foot is narrow. This species lives in two fathoms' sandy mud at Takano-Sima, a small island on the east coast of Japan.

Genus OBELISCUS, Montf.

1. OBELISCUS PULCHELLUS, A. Ad., Sow. Thes. Mon. Obel. pl. 171. fig. 20.

Hab. O-Sima; Yobuko; Mososeki.

2. OBELISCUS TERES, A. Ad., Sow. Thes. Mon. Obel. pl. 171. figs. 31, 32.

Hab. Mino-Sima.

3. OBELISCUS BALTEATUS, A. Ad., Sow. Thes. Mon. Obel. pl. 171. fig. 25.

Hab. Yobuko; Uruga.

4. OBELISCUS PUSILLUS, A. Ad., Sow. Thes. Mon. Obel. pl. 171. fig. 7.

Hab. O-Sima; Takano-Sima.

5. OBELISCUS NITIDULUS, A. Ad.

Syrnola nitidula, A. Ad., Ann. Nat. Hist. 1860, vi. 335.

Hab. Mino-Sima, 63 fathoms; O-Sima, 25 fathoms.

6. OBELISCUS VITREUS, A. Ad.

Syrnola vitrea, A. Ad., Annals, 1860, vi. 335.

Hab. Uruga; Tsu-Sima.

7. OBELISCUS TRIFASCIATUS, A. Ad.

O. testa acuminato-conoidea, cornea, tenui, semipellucida, vitrea; anfractibus normalibus 7, planiusculis, fasciis tribus rufis transversis ornatis, suturis cæaratis, apertura ovata; plicæ suprema valida transversa, plicæ inferiore parva inconspicua; labro intus lirato.

Hab. Uruga; Mososeki.

This species resembles *O. nitidulus* in form; but the whorls, in all my specimens, are adorned with three transverse bands.

8. OBELISCUS EBURNEUS, A. Ad.

O. testa subulato-aciculata, elurnea, solida, opaca, lævi; anfractibus normalibus circa 10, planulatis, sulcis longitudinalibus hic

et illuc instructis, suturis valde cæaratis; anfractu ultimo ad peripheriam obtusim angulato; apertura subquadrata; labio buplicato; plica superiore valida, transversa, tortuosa; labro margine rectiusculo, intus lirato.

Hab. O-Sima.

This is a slender, white, solid species, with the whorls here and there longitudinally sulcate.

Genus SYRNOLA, A. Adams.

Testa subulata, recta, vitrea, polita; anfractibus planis, simplicibus, suturis impressis. Apertura oblonga; labio in medio plica obliqua instructo; labro interdum intus sulcato, margine acuto.

1. SYRNOLA GRACILLIMA, A. Ad., Annals, 1860, v. 405.

Hab. Mino-Sima; Uraga.

2. SYRNOLA CINCTELLA, A. Ad., Annals, 1860, vi. 333.

Hab. O-Sima; Seto-Uchi.

3. SYRNOLA MERA, A. Ad., Annals, 1860, vi. 334.

Hab. Mino-Sima; O-Sima.

4. SYRNOLA TERETIUSCULA, A. Ad., Annals, 1860, vi. 334.

Hab. Tsu-Sima, 15 fathoms.

5. SYRNOLA PUPINA, A. Ad., Annals, 1860, vi. 334.

Hab. Mososeki; Mino-Sima.

6. SYRNOLA PYRAMIDALIS, A. Ad., Annals, 1860, vi. 334.

Hab. Tsu-Sima.

7. SYRNOLA BIZONALIS, A. Ad., Annals, 1860, vi. 334.

Hab. Mino-Sima.

8. SYRNOLA ELEGANS, A. Ad.

Obeliscus elegans, A. Ad., Sow. Thes. Mon. Obel. pl. 171. fig. 19.

Hab. O-Sima; Seto-Uchi.

9. SYRNOLA BRUNNEA, A. Ad.

Obeliscus brunnea, A. Ad., Sow. Thes. Mon. Obel. pl. 171. fig. 35.

Hab. O-Sima.

10. SYRNOLA ACICULATA, A. Ad.

Obeliscus aciculata, A. Ad., Sow. Thes. Mon. Obel. pl. 171. fig. 21.

Hab. Tanabe.

11. SYRNOLA STRIATULA, A. Ad.

Obeliscus striatula, A. Ad., Sow. Thes. Mon. Obel. pl. 171. fig. 29.

Hab. Seto-Uchi.

12. SYRNOLA BUXEA, Gould.

Obeliscus buxeus, Gld. Otia Conch. p. 147.

Hab. Takano-Sima.

13. SYRNOLA LACTEA, A. Ad.

S. testa pyramidato-subulata, lactea, solida, nitida, lævi; anfractibus normalibus 8, planis, suturis exaratis, anfractu ultimo ad peripheriam subangulato; apertura subquadrata; labio brevi; plica parietali valida, transversa; labro margine in medio obtuse angulato.

Hab. O-Sima.

A solid, milk-white, shining species, with the sutures exarate, and the last whorl angulate at the periphery.

14. SYRNOLA SEROTINA, A. Ad.

S. testa subulata, vertice subattenuato, serotina, lævi, nitida; anfractibus normalibus 7, planis, linea rufa ad suturas ornatis, ultimo in medio linea rufa transversa circumcincto; apertura ovata; labio tenui, rectiusculo, albido, plica parietali postica obliqua; labro margine albido.

Hab. Takano-Sima.

A small, light orange-coloured species, with the columella and the margin of the outer lip whitish.

15. SYRNOLA SUBULINA, A. Ad.

S. testa aciculato-subulina, alba, linea rufo-fusca transversa ad suturas ornata; anfractibus normalibus 9, planatis, ultimo ad peripheriam angulato et linea rufo-fusca succincto; apertura subquadrata, antice subeffusa; plica parietali spirali, postica; labro margine in medio obtuse angulato.

Hab. Takano-Sima.

Somewhat resembling *S. cinctella*, but more subulate and slender, and angulate at the base.

16. SYRNOLA PISTILLUM, A. Ad.

S. testa subulata, solida, opaca, lactea, nitida, vertice obtusiusculo; anfractibus normalibus 9, planatis, sublente transversim tenuissime striatis; apertura elongato-ovata; labio arcuato, plica parietali obliqua.

Hab. Yobuko.

A small, pestle-shaped, solid, milk-white species, with the whorls very finely transversely striated.

17. SYRNOLA CYLINDRELLA, A. Ad.

S. testa cylindræa, in medio tumidula, cerina, linea angusta transversa rufa ad suturas ornata; anfractibus normalibus 9, convexis, ultimo in medio linea rufa circumcincto; apertura subquadrata; labio brevi, plica parietali spirali valida; labro margine rectiusculo.

Hab. Takano-Siam.

A nearly cylindrical species, with the whorls but very slightly enlarged in the middle.

18. SYRNOLA COLUMNELLA, A. Ad.

S. testa subcylindraceo-subulata, cerina, linea rufa spirali ad suturas ornata; anfractibus normalibus 11, convexis, ultimo linea rufa transversa succincto; apertura subquadrata, antice vix effusa; plica parietali valida, postica.

Hab. Seto-Uchi; Mososeki.

This is an elongated subcylindrical columellar species, with numerous convex whorls, and is of much larger dimensions than *S. cylindrella*.

19. SYRNOLA DÆDALA, A. Ad.

S. testa subulata, in medio tumidula, lactea, nitida, linea pallida fulva transversa ornata; anfractibus normalibus 7, planis, longitudinaliter substriatis, intus linitis, anfractu ultimo elongato ad basin rotundato; apertura oblonga; plica parietali postica, obliqua; labro margine arcuato.

Hab. Uruga.

A somewhat pupiform milk-white species, obscurely banded with pale fulvous.

Genus STYLOPTYGMA, A. Ad.

Testa utrinque constricta, pupiformis, elongata, anfractibus varie sculptis, plerumque lævibus.

In this division I have grouped together all the Japanese species of *Syrnola* which assume a pupoid form or *Clausilia*-like aspect. I originally founded the group on *Monoptygma stylinum*, A. Ad. (Proc. Zool. Soc. 1851, p. 224); but a more extensive knowledge has enabled me to modify somewhat the original diagnosis so as to include a wider range of species.

1. STYLOPTYGMA PUPIFORME, A. Ad.

Rissoa (Goniostoma) pupiformis, A. Ad., Annals, 1860, v. 411.

Hab. Mino-Sima.

2. STYLOPTYGMA TËNIATUM, A. Ad.

S. testa elongata, clausiliiformi, in medio tumida, tenui aut epidermide subfusca fugacea obtecta, zonulis rufis transversis ornata; anfractibus normalibus 7, planatis, longitudinaliter strigulatis, suturis profundis; apertura ovata, antice dilatata; labio incrassato, antice subplanato, plica parietali obliqua; labro intus simplici.

Hab. Takano-Sima.

A very delicate and prettily banded species, of *Clausilia* shape, and with the whorls longitudinally strigose or strigulate.

3. STYLOPTYGMA LENDIX, A. Ad.

S. testa elongata, pupiformi, in medio tumida, tenui, semiopaca, lactea, polita, nitida; anfractibus normalibus 7, planis, intus transversim liratis, obsolete longitudinaliter striatis; apertura ovata, antice dilatata et eversa; plica parietali obliqua, valida.

Hab. Yobuko.

A polished white larviform species, with the transverse internal grooves visible through the semiopaque substance of the whorls.

4. STYLOPTYGMA GIBBUM, A. Ad.

S. testa elongato-ovata, brevicula, pupiformi, utrinque constricta, solidiuscula, vitrea, lavi, semipellucida, alba; anfractibus normalibus 5, subconvexis, penultimo gibboso; apertura obliqua, semiovata; plica parietali parva, obliqua.

Hab. O-Sima; Tanabe.

This is a very peculiar smooth vitreous species, with the penultimate whorl gibbous: it is pellucid only when in a fresh condition; dead or worn specimens are opaque and dull.

5. STYLOPTYGMA CEREUM, A. Ad.

S. testa elongata, pupiformi, in medio tumida, solidiuscula, cerea; anfractibus normalibus 6, planatis, suturis obliquis impressis; apertura elongato-ovali, antice dilatata; labio calloso, incrassato; plica parietali obliqua, inconspicua.

Hab. Takano-Sima.

A wax-like pupoid species, with the inner lip thickened and callosous, and the parietal plica obsolete.

6. STYLOPTYGMA LARVULA, A. Ad.

S. testa gracili, teretiuscula, in medio tumidula, solida, opaca, lactea, polita; anfractibus normalibus 8, planis, suturis impressis; apertura parva, ovata; plica parietali valida, transversa; labro intus lirato.

Hab. O-Sima.

A solid, milk-white, polished species, with transverse internal liræ showing through the substance of the whorls. Its specific name is derived from its somewhat resembling a meal-worm.

7. STYLOPTYGMA SUBULIFORME, A. Ad.

S. testa aciculato-subulata, alba, tenui, longitudinaliter substriata; anfractibus normalibus 11, planis, ad suturas concinne crenulatis; suturis obliquis, valde impressis; apertura subquadrata; labio plica parva, obliqua; labro dilatato, margine flexuoso.

Hab. Tsu-Sima, 30 fathoms.

A subulate slender species, more nearly approaching the type-species than any other; the whorls are crenulated at the sutures, and the outer lip is dilated and flexuous at the margin.

Genus ELUSA, A. Ad.

Testa subulata, turrata; anfractibus longitudinaliter plicatis. Apertura ovata, labio plica unica instructo, labro sæpe intus lirato.

1. ELUSA TERES, A. Ad. Annals, 1861, vii. 297.

Hab. Hulu-Shan Bay; Gulf of Lian-Tung.

2. ELUSA GRACILIS, A. Ad.

Pyramidella gracilis, A. Ad., Sow. Thes. Mon. Pyram. pl. 172. f. 14, 15.

Hab. Yobuko.

3. ELUSA SUBULATA, A. Ad.

Pyramidella subulata, A. Ad., Sow. Thes. Mon. Pyram. pl. 172. f. 13.

Hab. O-Sima, 26 fathoms.

4. ELUSA CASTANEA, A. Ad.

E. testa tenui, subulato-turrata, castanea, nitida; anfractibus normalibus 10, planatis, intus transversim liratis, supremis longitudinaliter plicatis, inferioribus lævibus; apertura subquadrata; labio rectiusculo, plica parietali postica subcelata; labro intus lirato, margine tenui.

Hab. O-Sima.

This is a deep-chestnut-coloured, semiplicate species, with the internal grooves showing through the substance of the shell.

5. ELUSA BADIA, A. Ad.

E. testa subulata, solida, rufo-fusca aut badia, nitida; anfractibus normalibus 12, planis, intus transversim sulcatis, anfractibus supremis longitudinaliter plicatis, inferioribus lævibus; apertura subquadrata; labio plica parietali tortuosa, medianu; labro intus sulcato.

Hab. Takano-Sima.

A solid, subulate, brown or reddish-brown species, with a strong transverse spiral plica.

6. ELUSA STRIGULATA, A. Ad.

E. testa subulata, solida, sordide alba, zonula rufa transversa ad suturas ornata; anfractibus normalibus 9, planatis, longitudinaliter strigulatis, anfractu ultimo linea rufa in medio cincto, apertura quadrato-ovata; labio brevi, plica parietali valida transversa; labro intus sulcato.

Hab. Yobuko.

This species is well marked by its peculiar strigulate whorls, and the rufous zone which encircles them.

7. ELUSA CINNAMOMEA, A. Ad.

E. testa subulata, cinnamomea; anfractibus normalibus 8, plana-

tis, longitudinaliter obsolete strigosis; apertura elongato-ovata, antice dilatata; labio subincrassato, plica parietali vix obsoleta; labro margine rectiusculo.

Hab. O-Sima.

A subulate, cinnamon-coloured species, with the whorls somewhat indistinctly strigose or strigulate, and with the columellar fold nearly obsolete.

7. SPECIES NONNULLE BURSARUM VEL RANELLARUM COLLEC-TIONIS CUMINGIANÆ. DESCRIPTÆ A GULIELMO DUNKER.

1. BURSA ASPERRIMA, Dkr.

Testa ovata, crassa, vix depressa, alba, maculis punctisque fuscis conspersa, anfractibus septenis convexis, angulatis, granosis et nodiferis instructa; anfractus ultimus spira vix duplo major, costis transversis majoribus nodiferis et rugoso-granosis necnon pluribus minoribus quasi margaritiferis cinctus; varices recti crassi, distantes; columella fortiter rugoso-plicata, valde sinuata; canalis curvus, paullo adscendens; labrum dentatum et plicatum, expansum; apertura parva subrotunda, superne canali brevi profundo terminata.

Altit. 40, latit. 30 mm.

Hab. China.

Hæc species magnitudine ad *Bursam cruentatam* Sow. prope accedens, superficie sua rugosissima excellit. Anfractus ultimus costis duabus crassis nodosis ac rugiferis, inferiore paullo angustiore, instructus est; costæ quæ sequuntur minores, ex parte moniliformes.

2. BURSA GRAYANA, Dkr.

Testa ovata, solida, alba vel gilva, maculis fuscis irregularibus parvis variegata, anfractibus senis, convexis, angulatis, prope suturam corrugatis, undique granosis, rugiferis transversimque costatis instructa; anfractus ultimus interdum gibbosus, $\frac{3}{5}$ totius longitudinis adæquans, costis majoribus tribus nodiferis subcompressis et nonnullis minoribus cinctus; varices crassi, vix obliqui; columella valde sinuata, rugoso-plicata; canalis brevis, curvus; labrum incrassatum, dentatum; apertura ovata, superne canali profundo, quasi fistulato, terminata.

Altit. 29, latit. 22 mm.

Hab. Mare Erythræum.

Hæc cochleola undique rugosa, granosa, et tuberosa, plerumque costis tribus crassioribus cincta, ad eas *Bursarum* species pertinet, quæ in superiore peristomatis parte canali fistulato gaudent, qui et in anfractibus superioribus observatur.

3. BURSA CUMINGIANA, Dkr.

Testa ovata, subdepressa, solidiuscula, pallide fusca, albida livido-que variegata, apicem versus rubida, anfractibus septenis con-